BEFORE

THE PUBLIC SERVICE COMMISSION OF SOUTH CAROLINA

SURREBUTTAL TESTIMONY

OF

AARON L. ROTHSCHILD

ON BEHALF OF

THE SOUTH CAROLINA DEPARTMENT OF CONSUMER AFFAIRS

Docket No. 2019-281-S

June 16, 2020

Q. PLEASE STATE YOUR NAME AND BUSINESS ADDRESS.

A. My name is Aaron L. Rothschild. My business address is 15 Lake Road, Ridgefield, CT.

Q. ARE YOU THE SAME AARON ROTHSCHILD THAT SUBMITTED DIRECT TESTIMONY IN THIS MATTER ON MAY 26, 2020?

A. Yes.

Q. WHAT IS THE PURPOSE OF YOUR SURREBUTTAL TESTIMONY?

A. The purpose of my Surrebuttal Testimony is to respond to the following issues addressed in the Rebuttal Testimonies of PUI witnesses Harold Walker and Donald Clayton:

I. Appropriateness of calculating the Cost of equity during the COVID-19 pandemic
II. Capital Structure
III. Risk Factors
IV. My cost of equity model implementation - DCF and CAPM.
V. Just and Reasonable Rates
VI. Burden of Poof
VII. Conflict of interest

As addressed below, Mr. Walker's and Mr. Clayton's criticisms are invalid and should be rejected.

I. COST OF EQUITY DURING THE COVID-19 PANDEMIC

Q. ON PAGE 2 OF HIS REBUTTAL TESTIMONY, MR. CLAYTON STATES THAT IT IS NOT APPROPRIATE TO CALCULATE THE COST OF EQUITY USING CURRENT MARKET DATA. PLEASE RESPOND.

A. I agree with Mr. Clayton that we should be cautious about calculating the cost of equity during a crisis. When stock market prices are highly volatile, as they are now during the COVID-19 pandemic, the cost of equity may very well be elevated. However, the cost of equity should be based on investor expectations as indicated by market data as much as possible. Hopefully this pandemic will be over soon, and market volatility will decline to pre-crisis levels, but much uncertainty remains regarding the course of this pandemic, including how long it will take to produce a vaccine and if infection rates will increase or decrease as we attempt to go back to work and school.

I caution against ignoring market data just because it looks abnormal, unique or difficult to make sense of. As explained in my Direct Testimony, I recommend using a cost of equity based on current market data because the actual cost of equity PUI will pay when it raises money will be determined by the market. In case they must raise money before the pandemic is over, my testimony provides a cost of equity recommendation that would apply. Mr. Clayton states the cost of capital would be higher during the pandemic. I agree. If PUI can wait until market conditions settle down to raise capital, the cost of capital would likely be lower than I have calculated in my testimony.

II. CAPITAL STRUCTURE

Q. MR. WALKER CLAIMS ON PAGE 8 OF HIS REBUTTAL TESTIMONY THAT YOUR CAPITAL STRUCTURE RECOMMENDATION IS NOT APPROPRIATE BECAUSE IT IS BASED ON INCORRECT INFORMATION. PLEASE RESPOND.

A. Mr. Walker claims that short-term debt should not be included to calculate the average capital structure of the proxy group because short-term debt is generally used for CWIP and not used in rate base. Removing the short-term debt used by the companies in my proxy group would increase the percentage of common equity. Since equity is more expensive than debt, a higher percentage of equity leads to a higher rate of return and higher bills for consumers. It is not fair to remove short-term debt from the capital structure calculations, and increase consumers rates, because it is generally used for CWIP. If PUI would like to charge consumers a rate based on a capital structure with a greater percentage of equity than what is being used by the companies in my proxy group, it should be required to calculate how much of the proxy companies' short-term debt is being used for CWIP. Mr. Walker has not provided this analysis and PUI has the burden of proof.

Further, Mr. Walker claims that I did not provide evidence that his proposed capital structure is unreasonable.[1] This is not true. On page 12 of my Direct Testimony I show evidence that the capital structure Mr. Walker claims as of August 31, 2019 (41.8% debt and 58.2% equity) is likely unreasonable because it is significantly higher than PUI's actual capital structure between 2014 and 2018. Over these four years, PUI's common equity ratio varied between 25.1% and 31.2%, averaging 28.0%.[2]

TABLE 7: PUI HISTORICAL CAPITAL STRUCTURE RATIOS

Year	2018	2017	2016	2015	2014	Average
Capital Structure Ratios						
Common Equity	25.8%	25.1%	31.2%	31.0%	26.7%	28.0%
Long-Term Debt	74.2%	74.9%	68.8%	69.0%	73.3%	72.0%
Total	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%

Mr. Walker's Direct Testimony, Schedule 3, Page 1 of 2

[1] Mr. Walker's Rebuttal Testimony, page 8, lines 17-18.

[2] Note- one number in my Direct Testimony table was incorrect. For 2016, I stated the common equity as 30.0% when it should've been 31.2%. This changes the averages noted in my Direct (27.7%:72.3%) to 28.0%:72.0% as reflected in the table included with this Surrebuttal Testimony. Additionally, the table in my Direct Testimony listed the years, reading left to right, from 2014 to 2018. The years should have been listed from 2018 to 2014, as corrected here.

These numbers came directly from Mr. Walker's Exhibit HW-2 (Schedule 3, page 1 of 2). In his Rebuttal Testimony, Mr. Walker did not dispute the accuracy of these numbers, nor did he explain why PUI is asking for a common equity ratio of 58.2% when their actual capital structure averaged less than 30% between 2014 and 2018.

If the Commission decides to adopt PUI's requested capital structure of 41.8% debt and 58.2% equity, my cost of equity recommendation would reduce from a range of 8.20%-9.07% to a range of 7.86%-8.73%. My overall cost of capital would reduce from a range of 7.10%-7.56% to a range of 7.04%-7.54%.[3] This does not mean that allowing a 58.2% common equity ratio would reduce rates, however. If the Commission uses PUI's proposed capital structure to set rates instead of the one I am proposing it would increase rates because equity cost rates must be grossed up for taxes.

III. RISK FACTORS

Q. PLEASE RESPOND TO MR. WALKER'S CLAIM THAT YOU FAILED TO CONSIDER RISK FACTORS.

A. Mr. Walker claims that I should have considered the following risk factors:

1. Federal tax law changes are credit negative for utilities[4];
2. PUI is smaller than the companies in my proxy group[5];
3. The Dow Jones utility index has increased more than projected by Charles Schwab and J.P. Morgan[6]; and

[3] Note- Footnote 1 in my direct testimony stated, "Using Mr. Walker's capital structure of 58.21% common equity would result in a cost of equity of 7.20% to 7.65%." This should have read "Using Mr. Walker's capital structure of 58.21% common equity would result in a cost of capital of 7.04% to 7.54%" as indicated in this testimony.
[4] Mr. Walker's Rebuttal Testimony, page 11, lines 20-23 and page 12, lines 1-26.
[5] Ibid. page 12, lines 27-31 and page 12, lines 1-24.
[6] Ibid, page 15, lines 13-22 and page 16, lines 1-11.

4. The yield curve has steepened

Federal Tax Law Change

Q. PLEASE COMMENT ON MR. WALKER'S CLAIM THAT THE FEDERAL INCOME TAX LAW CHANGE IS AN ADDITIONAL RISK FACTOR THAT SHOULD BE CONSIDERED.

A. Mr. Walker's claim that the tax law change deserves consideration above and beyond the results of cost of equity models is unjustified. The law was passed in December 2017, giving investors plenty of time to incorporate the impact of this law into the market price of securities. Whatever impact this law has had, cost of equity model results will reflect this change.

PUI's Small Size

Q. DO YOU AGREE WITH MR. WALKER'S CLAIM THAT PUI'S SIZE IS AN INDICATOR OF BUSINESS RISK?

A. No. There is no universal agreement that smaller companies have a higher cost of equity. Professor Aswath Damodaran from New York University states the following regarding the supposed "small cap premium":

> Even if you believe that small cap companies are more exposed to market risk than large cap ones, this is an extremely sloppy and lazy way of dealing with that risk, since risk ultimately has to come from something fundamental (and size is not a fundamental factor).[7]

The *Principles of Corporate Finance* provides evidence that small firms do not have a higher cost of equity. Quoting this textbook on page 26 of his Rebuttal Testimony, Mr.

[7]Aswath Damodaran, Equity Risk Premiums (ERP): Determinates, Estimation and Implications – The 2015 Edition (paper updated, March 2015). Page 42.

Walker states that "the relationship among stock returns and firm size and book-to-market ratio has been well documented". However, the textbook explains that "...since the mid-1980s small-firm stocks have underperformed just about as often as they have overperformed."[8] The small-firm effect has "vanished" and has likely never existed. It is not appropriate to charge PUI's consumers higher rates because of their relatively small size in relation to the water proxy companies because the evidence does not support a higher cost of equity for smaller companies. Additionally, it should be noted that PUI has access to the resources of Ni Pacolet Milliken Utilities, LLC.

<u>The Dow Jones Utility Index has Increased More Than Projected by Charles Schwab and J.P. Morgan</u>

Q. PLEASE COMMENT ON MR. WALKER'S CLAIM THAT INVESTORS HAVE NOT RELIED ON THE CHARLES SCHWAB AND J.P. MORGAN REPORTS CITED IN YOUR TESTIMONY.

A. Mr. Walker claims that the cost of equity results in these reports should be questioned because actual returns have been higher in the relatively short time since these reports were published. The Charles Schwab and J.P. Morgan reports which Mr. Walker is referring to project market returns of between 5.25% and 8.75%. These reports provide long-term forecasts so it remains to be seen if their return projections will turn out to be accurate or not. Regardless of how accurate these reports turn out to be, expected returns and actual returns are rarely the same. They are different concepts. We can head to the beach expecting sun and get rained out. We can buy a stock expecting to profit and lose money instead. Mr. Walker understands this. In his Rebuttal Testimony, he explains that equity

[8] Brealey, Myers and Allen, Principles of Corporate Finance, 12h edition, page 206,

analyst forecasts should be used as a proxy for growth in the DCF model regardless of their accuracy.[9] Although I do not agree that equity analyst 5-year EPS forecasts should be used mechanically as the growth component in the DCF model, I agree with Mr. Walker's point that expectations and outcomes are not necessarily the same.

I do not rely on the results of these two reports in my cost of equity calculations. However, I believe they provide additional evidence that Mr. Walker's 10.5% cost of equity recommendation is excessive.

Steepening Yield Curve

Q. PLEASE COMMENT ON MR. WALKER'S CLAIM THAT A STEEPENING YIELD CURVE CONTRADICTS YOUR CLAIM THAT RETURN EXPECTATIONS ARE LOWER TODAY.

A. Mr. Walker does not explain why a steepening yield curve contradicts anything I have said regarding investors' return expectations. In my Direct Testimony, I explain that a steep yield curve indicates that investors expect economic conditions to improve and that investors require a higher yield to purchase long-term bonds relative to short-term bonds. I do not say anything about how a steep yield curve impacts investors' equity return expectations. If anything, recent changes in interest rates indicate the cost of equity has been decreasing. The yield on the 30-year U.S. Treasury bond has decreased nearly 120 basis points since the beginning of 2020.

IV. COST OF EQUITY MODEL IMPLEMENTATION

Discounted Cash Flow (DCF)

[9] Mr. Walker's Rebuttal Testimony, page 18, line 18 and page 18, lines 16-17.

Q. PLEASE RESPOND TO MR. WALKER'S CLAIM THAT YOU IMPROPERLY RELIED UPON GROWTH RATES IN YOUR DCF MODEL.

A. Mr. Walker's primary criticism of my DCF method is that my growth component is not based on analysts' EPS growth rate projections.[10] As explained in my Direct Testimony, a proper application of the DCF method requires that the dividend yield be computed properly, and that the growth rate used be derived from a careful study of what future *sustainable* growth in cash flow is anticipated by investors. My results are not as influenced by overly optimistic analysts' forecasts as would have been the case had I merely used analysts' five-year earnings growth rate forecasts as a proxy for long-term growth. This is because the DCF methods I use compute sustainable growth rates, rather than growth rates that can exaggerate the growth rate due to assuming that a relatively short-term forecast (five-years) will remain indefinitely.

J.P. Morgan Chase uses the sustainable growth form of the DCF method, as I do, in its 2019 Long-Term Capital Market Assumptions publication.[11] *Principles of Corporate Finance*, a leading financial textbook used in business schools and investment banks around the world, recommends using the very same method I use to calculate the cost of equity for regulated energy utility companies.[12]

<u>Capital Asset Pricing Model (CAPM)</u>

Q. PLEASE SUMMARIZE MR. WALKER'S CRITICISMS OF YOUR CAPM APPROACH.

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[10] Mr. Walker's Rebuttal Testimony, page 17, lines 17-25.

[11] 23rd Annual Edition, Long-Term Capital Market Assumptions - Time-tested projections to build stronger portfolios, pp. 62-63.

[12] Brealey, Myers, and Allen (2017), Principles of Corporate Finance, 12th Edition, McGraw-Hill Irwin, New York, page 86-87.

A. Mr. Walker claims that my CAPM method is not useful in this case for the following reasons:

1. It uses a risk-free rate based on the short-term (3-month) treasury bill;
2. It relies on my own "unique betas" instead of published betas; and
3. It does not reflect the required CAPM size premium.

Q. PLEASE RESPOND TO MR. WALKER'S CRITICISM OF USING A RISK-FREE RATE BASED ON THE SHORT-TERM INTEREST RATES.

A. Mr. Walker does not believe that a short-term (3-month) treasury bill rate should be used as the risk-free rate. As discussed in my Direct Testimony, it is generally preferable to use the market yield on short-term U.S. treasuries yields as the risk-free rate because these bonds have a beta close to zero. The *Principles of Corporate Finance states "*The CAPM…calls for a short-term interest rate."[13] I chose to use a risk-free rate based on both long- and short-term treasury yields because, as indicated by the steepness of the yield curve,[14] investors expect short-term interest rates to increase.

Q. PLEASE COMMENT ON MR. WALKER'S CRITICISM OF HOW YOU CALCULATED THE BETAS USED IN YOUR CAPM ANALYSIS.

A. Mr. Walker confuses the term "calculate" unique beta with the term "choose" the beta based on market data. Of course, both Mr. Walker and I had to decide what beta to use in our CAPM. My calculations use actual market data based on investor behavior.

[13] Brealey, Myers, and Allen (2017), Principles of Corporate Finance, 12th Edition, McGraw-Hill Irwin, New York, page 228

[14] The yield curve on U.S. Treasury bonds relates the yield to its time to maturity. We say the current yield curve is steep because the difference in yield between short-term (near 0%) and long-term (over 1%) bonds is large in percentage terms.

It is not possible to implement a CAPM without making calculations and decisions regarding which data to use. Mr. Walker also makes decisions regarding which data to use and he also makes calculations. For example, Mr. Walker chose to use historical betas published by Value Line instead of Yahoo Finance, Reuters, Market Watch, NASDAQ, YCharts or many other publications available to investors. Many of these sources publish different beta values for the same companies because their calculations vary.

Regarding the option data that I use to calculate the beta component of my CAPM, the Chicago Board of Options Exchange (CBOE) says the following: "Option prices reflect the risk of a stock or stock index. The level of risk conveyed by option prices is often referred to as implied volatility."[15] It has been found that "the CAPM beta can be estimated from a single day of options"[16] and as discussed above, "the traditional CAPM prediction holds" when option-implied betas are used. When historical betas are used, the CAPM predictions do not hold.

Q. ON PAGE 27 OF HIS REBUTTAL TESTIMONY MR. WALKER STATES THAT INVESTORS' EXPECTATIONS AND THE MARKET REQUIRED COST OF EQUITY IS NOT BASED UPON MR. ROTHSCHILD'S "UNIQUE BETAS". PLEASE RESPOND.

A. Mr. Walker's claim that my betas are not based on investors' expectations is analogous to saying that building prices are not relevant to real estate investors' market expectations. Real estate prices are the result of their expectations. For example, if investors learn something new (e.g. decreasing unemployment rate) that convinces them that building

[15] CBOE S&P 500 Implied Correlation Index, 2009, page 1.
[16] Christoffersen, P., Pan. X, 2014. Equity Portfolio Management Using Option Price Information, Center for Research in Economic Analysis of Time Series, Page 16.

prices will increase in the future, they are likely to be willing to pay more for buildings today than if they learned that the unemployment rate was increasing. Therefore, the price of buildings provides relevant information regarding real estate investors' expectations. Similarly, stock option prices provide information regarding what investors expect the price of a stock to be in the future.

As discussed in my direct testimony, the market prices of put and call options provide information regarding the probability distribution of future stock prices expected by investors. The covariance between the expected returns for my Proxy Group and for the S&P 500 indicates what investors expect betas will be in the future. We do not have to know what information investors used to decide how much they were willing to pay for a stock option. In fact, it is unlikely that most investors know what information they used before trading a stock. Was it the 5-year historical beta published by Value Line, the Federal Reserve's press release or something they read in a tweet? Regardless of what combination of various sources impact individual investors and the market overall, the market price of securities is our best source of investors' expectations.

Q. ON PAGE 27 OF HIS REBUTTAL TESTIMONY MR. WALKER STATES THAT HE DISAGREES WITH THE RISK PREMIUM PORITION OF YOUR CAPM ANALYSIS. PLEASE RESPOND.

A. Mr. Walker does not explain why he disagrees with my market risk premium.

V. JUST AND REASONABLE RATE

Q. ON PAGE 5 OF HIS REBUTTAL TESTIMONY MR. WALKER STATES THAT YOUR COST OF EQUITY RECOMMENDATION DOES NOT REFLECT NOR

CONSIDER THE POSSIBLE WRITE-OFF OF 93% OF THE COMPANY'S INVESTMENT RELATED TO THE PURCHASE OF THE CITY'S ASSETS. PLEASE RESPOND.

A. As discussed in my direct testimony, the percentage of the $18 million acquisition price paid by Palmetto Richland County ("PRC") in 2013 that should be allowed in PUI's rate base should be just and reasonable. Regulatory principles require CIAC to be accounted for and not be allowed in PUI's rate base. Setting rates as if CIAC funds were an investment made by PUI or the City is unfair to the consumers who made those contributions and to existing consumers who would be asked to cover those costs once again.

My recommendations are consistent with legal standards set by the United States Supreme Court and market data. In particular, my 8.20% to 9.07% (averaging 8.63%) cost of equity recommendation satisfies the requirements of *Hope* and *Bluefield* that regulated utility companies should have the opportunity to earn a return commensurate with returns on investments in other enterprises having corresponding risks.

VI. BURDEN OF PROOF

Q. ON PAGE 4 OF HIS REBUTTAL TESTIMONY MR. WALKER STATES THAT YOU HAVE NOT PRESENTED ANY ANALYSIS OF CIAC IN YOUR TESTIMONY. PLEASE RESPOND.

A. As discussed in my Direct Testimony, PUI has the burden of proof and the fact that the City kept poor accounting records does not justify PUI, or the City, taking ownership of the CIAC.

VII. CONFLICT OF INTEREST

Q. ON PAGE 4 OF HIS REBUTTAL TESTIMONY MR. WALKER STATES THERE IS NO ECONOMIC INCENTIVE FOR AN IOU TO PAY MORE THAN NECESSARY TO PURCHASE A MUNCIPAL SYSTEM. PLEASE RESPOND.

A. Mr. Walker's claim that regulated utility companies do not have an incentive to increase their rate base is false. One of the primary ways a utility company can grow its earnings is to increase the size of its rate base. Regulatory policy reform initiatives across the country have recognized that in cost-of-service regulation, utilities have an incentive to "gold-plate" their system by building more than is needed. The New York PSC staff stated, "utilities have a natural incentive to grow the rate base to the maximum extent"[17] in an Order adopting revenue policy reform. The legal scholar Scott Hempling states the following regarding IOU's acquiring municipal water systems:

> …each side has an incentive to inflate the purchase price. The municipal seller can use the extra proceeds to build soccer fields or fix pension deficits. The acquirer can put the acquisition cost into rate base; so, oddly, the more it pays the more it profits.[18]

If a utility company's management ever stopped caring about growing earnings, and keeping costs as low as possible, it would be detrimental to both investors and consumers. Management with an indifference to earnings should not be running a utility or a company of any kind. In an unregulated industry, competition balances the interests of companies to grow earnings and the interest of consumers to keep prices as low as possible.

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[17] CASE 14-M-0101, Proceeding on Motion of the Commission in Regard to Reforming the Energy Vision, Order Adopting A Ratemaking And Utility Revenue Model Policy Framework, May 19, 2016.

[18] https://www.scotthemplinglaw.com/essays/water-mergers-are-they-making-economic-sense

In the case of an IOU purchasing a municipal wastewater system in general, and how much of the $18 million acquisition price should be allowed in rate base in particular, the interests of consumers must be protected by regulation.

VIII. CONCLUSION

Q. PLEASE SUMMARIZE YOUR RESPONSE TO MR. WALKER'S AND MR. CLAYTON'S REBUTTAL TESTIMONIES.

A. Their criticisms of my Direct Testimony are invalid. Their Rebuttal Testimony arguments are unfounded and should therefore be rejected. As explained in my Direct Testimony, I agree with Mr. Clayton that we should be cautious about calculating the cost of equity during a crisis. When stock market prices are highly volatile, as they are now during the COVID-19 pandemic, the cost of equity may very well be elevated. However, the cost of equity should be based on investor expectations as indicated by market data as much as possible.

My DCF method maintains its accuracy irrespective of the market-to-book ratio of utility stocks. Mr. Walker's comparison of projected returns on book equity to DCF results leaves out the most important piece of information in determining the cost of equity which is: what are investors willing to pay for what they expect to receive in the future? Return on book equity is not the cost of equity. My cost of equity recommendation for PUI is based on the results of my cost of equity models and a review of current capital markets. My cost of equity recommendation for PUI is consistent with market data, is market-based, and would allow PUI to raise capital on reasonable terms in today's capital markets.

Also, as discussed in my direct testimony, the percentage of the $18 million acquisition price paid by Palmetto Richland County ("PRC") in 2013 that should be allowed in PUI's rate base should be just and reasonable. Regulatory principles require not including CIAC in rate base. PUI has the burden of proof and the fact that the City kept poor accounting records does not justify PUI, or the City, taking ownership of the CIAC. It is critical that the Commission recognize that, when an IOU purchases a municipal system, they both stand to benefit from the higher the price, at the expense of consumers.

Q. DOES THIS CONCLUDE YOUR SURREBUTTAL TESTIMONY?

A. Yes.